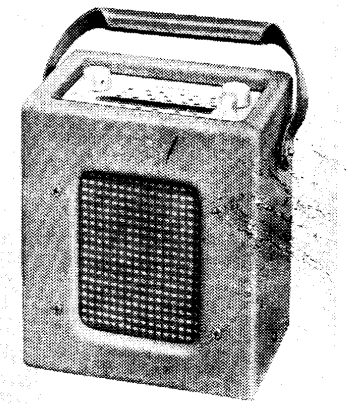
"TRADER" SERVICE SHEET

934

ALBA "ROVER"

Model 2715 A.C./D.C./A.D. Portable Superhet



HOUSED in a container of little more than "personal" dimensions, the Alba 2715, known also as the "Rover," is a 4-valve (plus metal rectifier) 2-band mains/battery portable designed to operate from A.C. or D.C. mains of 200-250 V or an all-dry battery. Although a frame aerial is fitted, provision is made for the connection of an external aerial, and for temporary use a throw-out aerial is stored inside the bottom cover.

Release date and original price: September 1949; £11 10s without battery, plus purchase tax.

CIRCUIT DESCRIPTION

Tuned frame aerial input **L1, C26** (M.W.) or **L1, L2, C26** (L.W.) precedes a heptode valve **(V1, Mullard DK91)** operating as frequency changer with electron coupling.

Oscillator grid coils **L3** (M.W.) and **L4** (L.W.) are tuned by **C28.** Parallel trimming by **C29** (M.W.) and **C30** (L.W.); series tracking by **C9** (M.W.) and **C10** (L.W.). Inductive reaction coupling by oscillator anode coils **L5** (M.W.) and **L6** (L.W.).

Second valve **(V2, Mullard DF91)** is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **C2, L7, L8, C3** and **C14, L9, L10, C15** in which the tuning capacitors are fixed and alignment adjustments are effected by varying the positions of the iron-dust cores.

Intermediate frequency 470 kc/s.

Diode second detector is part of single diode pentode valve **(V3, Mullard DAF91).** Audio frequency component in rectified output is developed across manual volume control **R7,** which is also the diode load resistor, and passed via A.F. coupling capacitor **C17** to control grid of pentode section, which operates as A.F. amplifier. The D.C. potential developed across **R7** is tapped off and fed back through decoupling circuits as G.B. to I.F. and F.C. valves, giving automatic gain control.

Resistance-capacitance coupling by **R11, C19** and **R12** between **V3** anode and pentode output valve **(V4, Mullard DL92).** Fixed tone correction in anode of **V4** by **C22.**

When the mains/battery change-over switch **S7-S16** is turned to "battery," the switches marked **(B)** in the circuit diagram close, connecting the 1.4 V filaments in parallel across the L.T. battery and connecting the H.T. battery to the H.T. positive line. In the mains position, the switches marked **(M)** close instead, connecting the mains via **S16(M), S12(M)** and leaving the filaments connected in series as the **(B)** switches open. H.T. current is supplied by a metal rectifier **(MR1, S.T.C. RM1).**

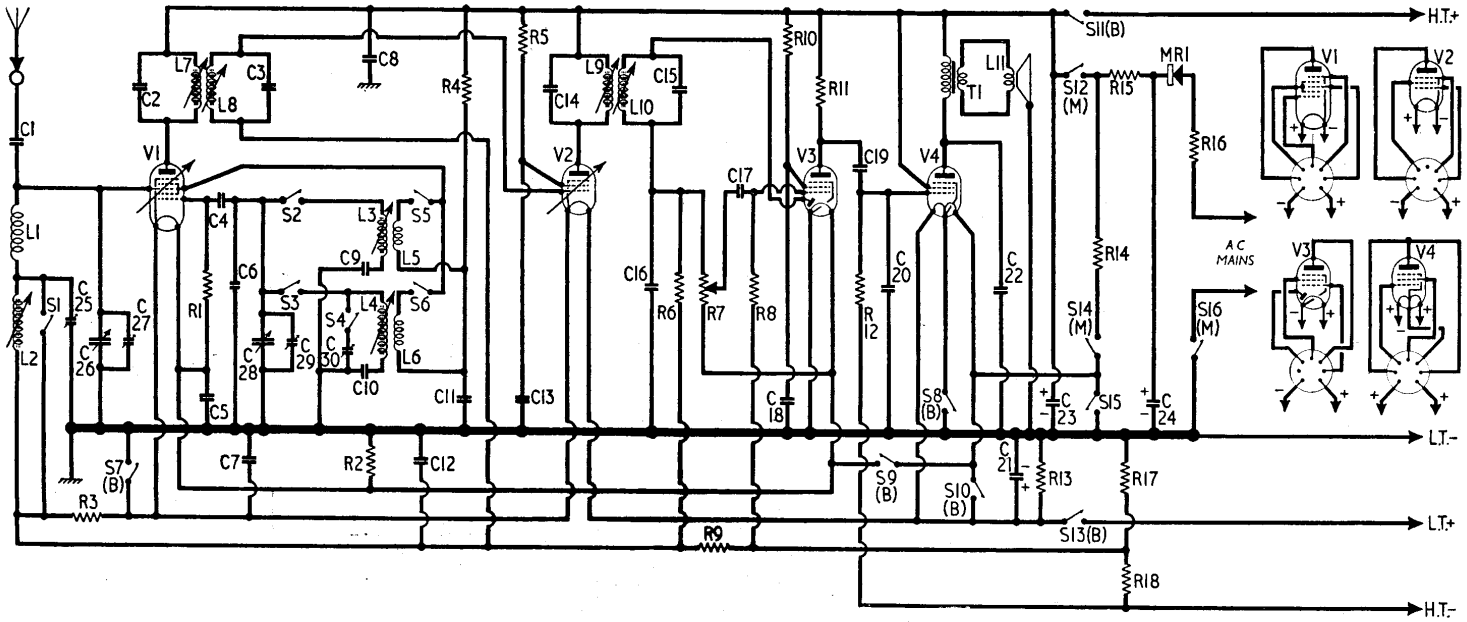
The filaments are fed via ballast resistor **R14** from the smoothed H.T. circuit, but H.T. current from the valves, which would otherwise overheat the frail filaments, is shunted past them via **R13** and **R2,** while additional L.T. smoothing is provided by **C21.** G.B. potential for all valves on battery operation is obtained from the drop along **R17, R18,** but on mains it is derived from the potential of the filaments in the series chain. **S15** opens on mains and battery, but it closes in the "off" position to short-circuit the entire heater circuit.

COMPONENTS AND VALUES

	RESISTORS	Values (ohms)	Locations
R1	V1 osc. C.G. ...	100,000	G6
R2	Fil. shunt	470	D6
R3	A.G.C. decoup. ...	4,700,000	G6
R4	Osc. anode load ...	22,000	F5
R5	V2 S.G. decoup. ...	68,000	F6
R6	A.G.C. Decoup. ...	4,700,000	E7
R7	Volume control ...	500,000	C1
R8	V3 C.G. resistor ...	4,700,000	D7
R9	A.G.C. decoup. ...	10,000,000	E8
R10	V3 S.G. decoup. ...	4,700,000	D6
R11	V3 anode load ...	1,000,000	D6
R12	V4 C.G. resistor ...	1,000,000	D7
R13	Fil. shunt	560	E7
R14	Filament ballast ...	1,500	G8
R15	H.T. smoothing ...	500	G8
R16	Mains dropper ...	700	A3
R17	V3 G.B. and	100	D8
R18	A.G.C. delay	270	D8

	CAPACITORS	Values (μF)	Locations
C1	Aerial series ...	0·000047	—
C2	1st I.F. trans. tun.	0·0001	A2
C3	1st I.F. trans. tun.	0·0001	A2
C4	V1 osc. C.G. ...	0·0001	G6
C5	L.T. by-pass ...	0·05	G7
C6	Fixed trimmer ...	0·000015	B1
C7	L.T. by-pass ...	0·05	G6
C8	H.T. R.F. by-pass	0·1	F5
C9	M.W. tracker ...	0·0005	A2
C10	L.W. tracker ...	0·000165	A2
C11	Osc. anode decoup.	0·05	F6
C12	A.G.C. decoup. ...	0·05	G7
C13	V2 S.G. decoup. ...	0·1	F6
C14	2nd I.F. trans. tun.	0·0001	B1
C15	2nd I.F. trans. tun.	0·0001	B1
C16	I.F. by-pass ...	0·0001	D7
C17	A.F. coupling ...	0·05	E6
C18	V3 S.G. decoup. ...	0·05	E6
C19	A.F. coupling ...	0·005	E7
C20	I.F. by-pass ...	0·0001	D7
C21*	Filament shunt ...	50·0	G8
C22	Tone corrector ...	0·005	D7
C23*	H.T. smoothing	32·0	A4
C24*	capacitors ...	32·0	A4
C25‡	Aerial L.W. trim....	0·0001	A3
C26†	Aerial tuning ...	§0·000364	B1
C27‡	Aerial M.W. trim.	—	B1
C28†	Oscillator tuning ...	§0·000364	B2
C29‡	Osc. M.W. trim. ...	—	B2
C30‡	Osc. L.W. trim. ...	0·0001	A3

* Electrolytic. † Variable. ‡ Pre-set.
§ "Swing" value, min. to max.



Circuit diagram of the Alba 2715 "Rover" A.C./D.C./battery portable superhet. **L1** is the frame aerial. The valve filaments are connected in series for mains operation, but for battery operation **S7(B), S8(B), S9(B), S10(B),** and **S13(B)** close to connect them in parallel across the 1.5 V L.T. unit. **S15** closes only in the "Off" position and short-circuits the entire filament series.

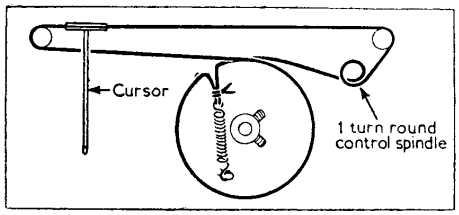
	OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Frame aerial ...		—	—
L2	L.W. loading coil...		13·5	A1
L3	Oscillator tuning coils		6·5	A3
L4			14·5	A3
L5	Oscillator reaction coils		3·0	A3
L6			5·0	A3
L7	1st I.F. trans.	Pri.	10·0	A2
L8		Sec.	10·0	
L9	2nd I.F. trans.	Pri.	10·0	B1
L10		Sec.	12·0	
L11	Speech coil ...		3·0	—
T1	O/put trans.	Pri.	500·0	B4
		Sec.	0·2	
S1-S6	W/band switches ...		—	G5
S7-S16	Mains/Battery and on/off switches ...		—	D5

GENERAL NOTES

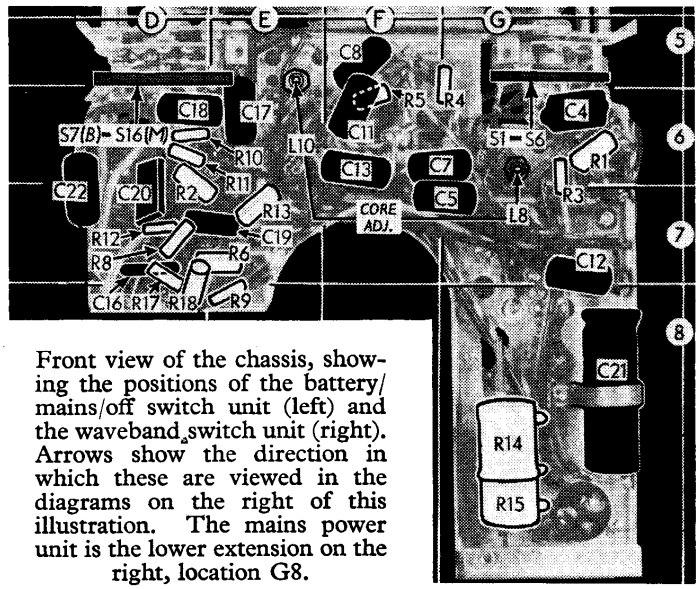
Switches.—**S1-S6** are the waveband switches, ganged in a single rotary unit. This is indicated (on the right) in our front view of the chassis; and shown in detail in the upper diagram in col. 3. In the M.W. position (control knob anti-clockwise) **S1, S2** and **S5** close; in the L.W. position **S3, S4** and **S6** close.

S7(B)-S16(M) are the mains/battery changeover switches, in a second rotary unit, indicated (on the left) in our front view of the chassis. The unit is shown in detail in the lower diagram in col. 3. The action of these switches is indicated by the letters **(B)** and **(M)** which show that they close on battery (control knob clockwise) or mains (knob central) respectively. **S15** closes only in the "off" position (knob anti-clockwise).

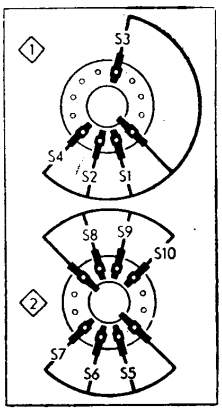
Chassis Divergencies.—In early versions, a frame aerial winding will be found round the speaker sub-baffle. This is never used. Capacitors **C5, C7** and **C13** may be either 0.05 μF or 0.1 μF.



The tuning drive system seen from above with scale removed and the gang at maximum.



Front view of the chassis, showing the positions of the battery/mains/off switch unit (left) and the waveband switch unit (right). Arrows show the direction in which these are viewed in the diagrams on the right of this illustration. The mains power unit is the lower extension on the right, location G8.



Diagrams of waveband switch unit (top) and power switch unit (bottom). (B) switches close for battery, and (M) switches close for mains.

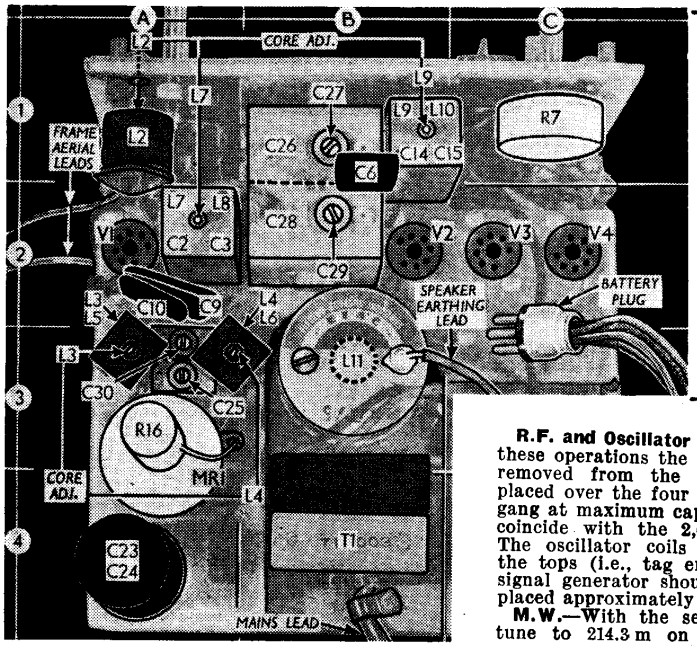
Drive Cord Replacement.—Two feet of fine quality plaited flax fishing line are required for the drive cord, which is run as shown in the sketch in col. 1 where it is viewed from above with the gang at maximum. The scale backing plate must be removed, and when replacing, a brass washer goes between it and each mounting pillar.

Batteries.—The receiver is fitted with a 4-pin plug to fit a combined H.T. and L.T. all-dry unit such as the Ever Ready Batrymax B114, which is rated at 69 V and 1.5 V. It fits into a clip inside the receiver.

CIRCUIT ALIGNMENT

Before commencing these operations the chassis must be removed from the carrying case complete with frame aerial, which must remain connected. If the alignment does not require adjustment of either **L8** or **L10**, the receiver may remain on its baffle; otherwise the baffle must be removed.

I.F. Stages.—Switch set to M.W., turn gang to minimum capacitance and volume control to maximum, switch set to battery operation and connect signal generator, via a **0.01 μF capacitor** in the "live" lead to control grid (pin 6) of **V1** and chassis. Feed in a 470 kc/s (638.3 m) signal, and adjust the cores of **L10, L9, L8** and **L7** (location references E5, B1, G6 and A2) for maximum output. Repeat these adjustments until no improvement results.



The chassis deck, as seen from the rear of the receiver, while still mounted on the speaker baffle. The cores of **L3** and **L4** should be adjusted from this side, as indicated.

R.F. and Oscillator Stages.—When carrying out these operations the glass scale panel should be removed from the cabinet (six screws) and placed over the four control spindles. With the gang at maximum capacitance the cursor should coincide with the 2,000 m mark on the scale. The oscillator coils should be adjusted from the tops (i.e., tag end) of their formers. The signal generator should be connected to a loop placed approximately 12in from the frame aerial.

M.W.—With the set still switched to M.W., tune to 214.3 m on scale, feed in a 214.3 m (1,400 kc/s) signal, and adjust **C29** (B2) and **C27** (B1) for maximum output. Tune to 445 m on scale, feed in a 445 m (674 kc/s) signal and adjust **L3** (A3) for maximum output. Repeat these operations until no further improvement results.

L.W.—Switch set to L.W., tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust **C30** (A3) and **C25** (A3) for maximum output. Tune to 1,875 m on scale, feed in an 1,875 m (160 kc/s) signal and adjust **L2** (A1) and **L4** (A3) for maximum output. Repeat these operations until no further improvement results.

DISMANTLING THE SET

Removing Chassis.—Remove the four control knobs (recessed grub screws) and invert the cabinet;

slide the retaining clip to free the two screw heads holding the bottom cover in position; pull the cloth tag, located between the two screw heads, and the bottom cover will free itself;

remove the battery clip (two woodscrews) and remove the four screws situated on the front outside the cabinet, round the speaker opening, when the chassis may be withdrawn;

the chassis may be separated from the baffle by removing four 6BA bolts and freeing the mains lead from its cleat on the sub-baffle.

When replacing, do not omit to replace the thin sheet of insulating material between the speaker chassis and the under-chassis components of the receiver.

Removing speaker.—Remove four nuts and bolts and push speaker through baffle.

When replacing, the speaker transformer should be at the bottom. The earthing lead from the chassis is soldered to a bolt head on the speaker magnet.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating from A.C. mains of 230 V. Using a new Ever Ready B114 battery, all readings were about 25 per cent lower than those in the tables. The total current consumption on batteries was 11 m/A.

The receiver was tuned to the lowest wavelength on the M.W. band and the volume control was at maximum, but there was no signal input. Voltages were measured on the 100 V scale of a model 7 Avometer, chassis being the negative connection.

Valves	Anode		Screen	
	V	m/A	V	m/A
V1 DK91	74	0·9	37	1·4
V2 DF91	74	1·2	30	0·3
V3 DAF91	*	0·05	*	0·02
V4 DL92	69	9.5	74	2·2

* Negligible readings.

Printed in England by The Cornwall Press Ltd., Paris Garden, London, S.E.1.